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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/612,445	07/07/2000	David E. Dodds	84883-102 ADB	7045

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CANADA

EXAMINER	
SHANG, ANNAN Q	

ART UNIT	PAPER NUMBER
2614	9

DATE MAILED: 08/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/612,445	DODDS ET AL.	
	Examiner	Art Unit	
	Annan Q Shang	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 July 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-7 and 11-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over **by Eames (6,208,637).**

As to claim 1, note the **Eames** reference figure 5, discloses method and apparatus for providing analog telephony services over a digital subscriber loop access systems and further discloses apparatus for distributing ADSL signals to customer premises from a central office comprising the following: the claimed "a central office..." is met by Central Office (CO), note figure 5, col. 7, lines 31-53 and col. 8, line 15-20, note that the CO includes PSTN 100 "POTS switching system" for telephony signals and ADSL terminals (col. 9, lines 35-55, note that USAM linecard plug-in units 920 of USAM ADSL 510 and 520 also contains Narrow-band lines, broadband line cards, VDSL line cards and ADSL line cards) for high speed data that connects ATM network and other private network "data network;" the claimed "a plurality of customer locations..." are met by Customer Premises 190 (Cust-P 190), note col. 8, lines 23-28, note that CP-190 has a telephone 194 (Tel 194) "one voice frequency POTS" and high speed data signals 181 to devices "ADSL terminal;" the claimed "field cabinet..." is met by USAM ADSL (RT) 520 (USAM 520), note col. 7, lines 63-col. 8, line 6, note that

USAM 520 contains a telephony/xDSL linecard 353 (figure 10 and col. 10, line 63-col. 11, line 10) and contains wire interface that interconnects the individual twisted wire pairs 180 (TWP) "metallic telephone line" from the respective Cust-P 190 to USAM 520; where each TWP 180 arrange to transmit both telephony signals and ADSL signals between the respective Cust-P 190 and USAM 520, note col. 8, lines 19-24; the claimed "a bi-directional link..." is met by Optical Fibers 160 (O-Fib 160), note col. 7, lines 28-35, note that O-Fib 160 transmits broadband analog signals in pre-selected frequency bands between the CO and USAM 520, note also that the telephony frequency band and the broadband frequency band are pre-selected frequency bands;

the claimed "splitter and interface module" at USAM 520 is met as follows; note the architecture of the USAM in figure 10 that is implemented in the various USAM including USAM 510 in the CO; the claimed "a plurality of signal splitting coupler units..." are met by USAM linecard plug-ins 920 (USAM 920), note figure 10 and col. 11, lines 31-35, note that USAM 920 linecard includes, Narrow-band lines, broadband line cards, VDSL line cards and ADSL line cards (col. 9, line 53-55) is associated with a respective Tel 194 and transmits and receives signals and separates the ADSL signals and telephony signals from the respective Tel 194 line; the claimed "a plurality of interface and frequency translation units..." is inherent to USAM linecards 920, note col. 10 line 63-col. 11, line 23, note the that the POTS signals of 0-4 kHz and the ADSL signals of 25 kHz-1.1 mHz, are shared on the downstream/upstream communication link, O-Fib 160, as such USAM 920 inherently includes frequencies translations units for receiving the separated ADSL signals for downstream/upstream communication

between the CO and the respective individual Tel 194 in a pre-selected one of the frequency bands that are associated with the respective individual Tel 194 line, and the claimed "a plurality of frequency translation and interface units at CO..." is inherent to Broadband Digital Terminal 130 (BDT 130), note lines 31-47, note that BDT 130 at the CO, inherently includes a plurality of frequency translation and interface units, since POTS signals of 0-4 kHz and the ADSL signals of 25 kHz-1.1 mHz, are shared on the downstream/upstream communication link, O-Fib 160, each of which is associated with the pre-selected band on the link O-Fib 160, associated with a respective individual telephone line and provides an interface between the respective ADSL signals at USAM 520 and the ADSL terminal of BDT 130 of the CO.

Eames fails to specifically teach a trunk cable containing a large number of TWPs and extending from the USAM 520 to the CO, where the USAM 520 includes connections for connecting the individual TWPs to the trunk cable for connections of signals between the customer 190 locations and the CO and USAM 520 including a plurality of connectors each arranged to connect the separate voice frequency POTS signals between the respective individual Tel 194 line and the trunk cable.

However, note **Eames** further discloses in figure 5, Twisted Wire Pairs 423 (TWPs 423) "a trunk cable," note figure 5 and col. 8, line 19, where plurality of TWPs 423 extends from USAM ADSL-CO 510 (USAM 510) within the CO where USAM 510 includes Tip and Ring (TR) Connectors 956 "a plurality of connectors," note col. 11, lines 24-30 for connecting the individual Tel 194 lines to TWPs 423 between the Cust-P 190 and CO, and further teaches TR Connectors 956, note col. 11, lines 24-30, where

TR 956 is the point of connectivity between the USAM linecard 920 and the TWP drop and separates the telephony signals between the respective individual Tel 194 line and the TWPs 423;

Therefore it would have been obvious to one of ordinary skill in the act at the time of the invention to modify Eames system with a single interface (USAM) at a remote location for broadband signals and POTS signals, because such a distributed architecture would allow for more effective service to broad geographical regions.

As to claim 2, the claimed "filter..." is inherent to A 932 and B 934 interface of USAM, note col. 10, line 63-col. 11, line 10, note that A 932 and B 934 transmits downstream/upstream telephony signals (col. 5, line 57) approximately 400 Hz to 4 KHz and broadband signals above 20 kHz, hence a filter, filters out only telephony signals and broadband signals.

As to claims 3, 4 and 5, Eames further discloses bi-directional link that includes the following: the claimed "fiber optic link..." is met by Op-Fib 160, note figure 5 and col. 7, lines 28-35, note that Op-Fib 160 links USAM 520 and CO and includes optical transceiver, Op-Fib 160 includes two unidirectional links and A 932 and B 934 interfaces contains directional hybrid coupler to interface the Op-Fib 160 links, note figure 10, and further includes Power Supply A and B that supplies power from CO to USAM 520, note col. 11, lines 36-43 and figure 11.

As to claim 6, Eames further discloses where the frequencies translators of USAM are arrange such that the frequency bands are located within respective 6 MHz frequency band communicated on Op-Fib 160 link, note col. 8, lines 28-44.

As to claim 7, the claimed "CATV modulator is met by ADSL SYSTEM 654 (figure 11A-B) within USAM 520, note col. 11, lines 44-55, note that USAM 520 locates the respective ADSL signals within a respective video channel frequency band which is communicated on Op-Fib 160 link.

As to claims 11, 12 and 13 Eames further discloses where the bi-directional link includes a coaxial cable link, note col. 9, lines 60-64, where the USAM which includes narrowband, broadband, VDSL and ADSL linecards, supports bi-directional services, including ADSL signals via TWPs, coaxial cable, optical or wireless, and includes at least transmitter and receiver to receive signals at respective frequencies, note figure 9 and col. 9, lines 35-64, note further that the USAM transmits downstream signals at a respective first frequency band and USAM 520 also transmits upstream signals at a second respective band to allow bi-directional signals of different frequencies to be transmitted across the coaxial cable between the USAM 520 and the CO, note col. 8, lines 28-44 and col. 10, lines 63-col. 11, line10.

As to claim 14, note the **Eames** reference figure 5, discloses method and apparatus for providing analog telephony services over a digital subscriber loop access systems and further discloses a splitter and interface module for use in apparatus for distributing ADSL signals to customer premises from a central office. the claimed "a central office..." is met by Central Office (CO), note figure 5, col. 7, lines 31-53 and col. 8, line 15-20, note that CO includes PSTN 100 "POTS switching system" for telephony signals and ADSL terminals (col. 9, lines 35-55, note that USAM linecard plug-in units 920 of USAM ADSL 510 and 520 also contains Narrow-band lines, broadband line

cards, VDSL line cards and ADSL line cards) for high speed data that connects ATM network and other private network "data network;" the claimed "a plurality of customer locations..." are met by Customer Premises 190 (Cust-P 190), note col. 8, lines 23-28, note that CP-190 has a telephone 194 (Tel 194) "one voice frequency POTS" and high speed data signals 181 to devices "ADSL terminal;" the claimed "field cabinet..." is met by USAM ADSL (RT) 520 (USAM 520), note col. 7, lines 63-col. 8, line 6, note that USAM 520 contains a telephony/xDSL linecard 353 (figure 10 and col. 10, line 63-col. 11, line 10) and contains wire interface that interconnects the individual twisted wire pairs 180 (TWP) "metallic telephone line" from the respective Cust-P 190 to USAM 520; where each TWP 180 arrange to transmit both telephony signals and ADSL signals between the respective Cust-P 190 and USAM 520, note col. 8, lines 19-24; the claimed "a bi-directional link..." is met by Optical Fibers 160 (O-Fib 160), note col. 7, lines 28-35, note that O-Fib 160 transmits broadband analog signals in pre-selected frequency bands between the CO and USAM 520, note also that the telephony frequency band and the broadband frequency band are pre-selected frequency bands;

the claimed "splitter and interface module" at USAM 520 is met as follows; note the architecture of the USAM in figure 10 that is implemented in the various USAM including USAM 510 in the CO; the claimed "a mounting assembly..." is Rack Mounting Brackets 910 of USAM 520, note figure 9 and col. 9, lines 35-40, note that USAM 520, houses the plurality of plug-ins linecard 920 and various other components of USAM ADSL 520 and also includes a plurality of terminal blocks for connecting the individual Tel 194 lines; the claimed "a plurality of signal splitting coupler units..." are met by

USAM linecard plug-ins 920 (USAM 920), note figure 10 and col. 11, lines 31-35, note that USAM 920 linecard includes, Narrow-band lines, broadband line cards, VDSL line cards and ADSL line cards (col. 9, line 53-55) is associated with a respective Tel 194 and transmits and receives signals and separates the ADSL signals and telephony signals from the respective Tel 194 line; the claimed "a plurality of interface and frequency translation units..." is inherent to USAM linecards 920, note col. 10 line 63-col. 11, line 23, note the that the POTS signals of 0-4 kHz and the ADSL signals of 25 kHz-1.1 mHz, are shared on the downstream/upstream communication link, O-Fib 160, as such USAM 920 inherently includes frequencies translations units for receiving the separated ADSL signals for downstream/upstream communication between the CO and the respective individual Tel 194 in a pre-selected one of the frequency bands that are associated with the respective individual Tel 194 line, and the claimed "a plurality of frequency translation and interface units at the CO..." is inherent to Broadband Digital Terminal 130 (BDT 130), note lines 31-47, note that BDT 130 at the CO, inherently includes a plurality of frequency translation and interface units, since POTS signals of 0-4 kHz and the ADSL signals of 25 kHz-1.1 mHz, are shared on the downstream/upstream communication link, O-Fib 160, each of which is associated with the pre-selected band on the link O-Fib 160, associated with a respective individual telephone line and provides an interface between the respective ADSL signals at USAM 520 and the ADSL terminal of BDT 130 of the CO.

Eames fails to specifically teach a trunk cable containing a large number of TWPs and extending from the USAM 520 to the CO, where the USAM 520 includes

connections for connecting the individual TWPs to the trunk cable for connections of signals between the customer 190 locations and the CO and USAM 520 including a plurality of connectors each arranged to connect the separate voice frequency POTS signals between the respective individual Tel 194 line and the trunk cable.

However, note **Eames** further discloses in figure 5, Twisted Wire Pairs 423 (TWPs 423) "a trunk cable," note figure 5 and col. 8, line 19, where plurality of TWPs 423 extends from USAM ADSL-CO 510 (USAM 510) within the CO where USAM 510 includes Tip and Ring (TR) Connectors 956 "a plurality of connectors," note col. 11, lines 24-30 for connecting the individual Tel 194 lines to TWPs 423 between the Cust-P 190 and CO, and further teaches TR Connectors 956, note col. 11, lines 24-30, where TR 956 is the point of connectivity between the USAM linecard 920 and the TWP drop and separates the telephony signals between the respective individual Tel 194 line and the TWPs 423;

Therefore it would have been obvious to one of ordinary skill in the act at the time of the invention to modify Eames system with a single interface (USAM) at a remote location for broadband signals and POTS signals, because such a distributed architecture would allow for more effective service to broad geographical regions.

Claim 15 is met a previously discussed with respect to claim 3.

Claim 16 is met a previously discussed with respect to claim 4.

Claim 17 is met a previously discussed with respect to claim 6.

Claim 18 is met a previously discussed with respect to claim 7.

3. Claims 8-10 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Eames (6,208,637)** as applied to claims 1 and 14, and further in view of **Inoue et al (4,907,218).**

As to claims 8-10 and 19-20, **Eames** teaches all the claim limitations as previously discussed with respect to claims 1 and 14, and further teaches ADSL transmission techniques using Quadrature Amplitude Modulation (QAM), Carrierless Amplitude Modulation, Pulse/Adaptive Differential Code Modulation, etc., to transmit frequencies across the bi-directional transmission medium between CO and USAM, note col. 10, lines 10-36; and further teaches a frequency translator that translates to intermediate frequencies and modulates to respective video channel frequency and directs the translations from ADSL signal to pre-selected frequency band and teaches a tuner that translates the pre-selected frequency band to the intermediate frequency band so as to translate the signal from the intermediate frequency band to the ADSL signal to the TWP line, note col. 8, lines 15-28 and col. 11, lines 1-35.

Eames fails to specifically teach frequency translator that includes a first translator arranged to translating to an intermediate frequency by double side band transmitted carrier modulation (AM-DSM-TC) of a radio frequency carrier at the intermediate frequency and translation a frequency band by AM-DSM-TC modulation of a radio frequency carrier where each frequency translator includes a tuner, that also includes an envelope detection of the AM-DSM-TC signal.

However, note the **Inoue et al** reference figures 1 and 2, discloses multiplex signal processing apparatus capable of multiplexing mass information in the specific

band while keeping compatibility with the conventional television system where a frequency is translate to intermediate frequency by double side band amplitude modulation, note figures 1, 12(a-b) and col. 3, line 41-col. 4, line 23.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of Inoue into the system of Eames in order to reduce the impairment caused by multiplex signals on the conventional television receivers and further suppress the crosstalk from the main signals to the multiplex signal and provide a better effective use of transmitted/received information.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kerpez (6,430,199) discloses method and system for distributing telephone and broadband services over the copper pairs within a service location.

Jenness (6,404,774) discloses method using low spectrum selectively for providing both ADSL and POTS service.

Kitamura et al (6,188,871) disclose regional common-use block of CATV system using the regional common-use blocks.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Annan Q Shang** whose telephone number is **703-305-2156**. The examiner can normally be reached on 700am-500pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **John W Miller** can be reached on **703-305-4795**. The fax phone numbers

for the organization where this application or proceeding is assigned are **703-746-5991** for regular communications and **703-746-5991** for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the **customer service** whose telephone number is **703-306-0377.**

Annan Q. Shang
August 11, 2003

JOHN MILLER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600